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EXAMINER

RUDE, TIMOTHY L

ART UNIT PAPER NUMBER

2871

DATE MAILED: 04/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/582,474

Applicant(s)

SEKIGUCHI, KANETAKA

Examiner

Timothy L Rude

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-7, 10-15, 17, 20-22, 24, 26, 28-34, 36, 38-40, 42-44 and 46-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 32 and 33 is/are allowed.
- 6) ☒ Claim(s) 5-7, 10-15, 17, 20-22, 24, 26, 28-31, 34, 36, 38-40, 42-43, 45 and 48-54 is/are rejected.
- 7) ☒ Claim(s) 44, 46 and 47 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claims

1. Claims 5, 10, 11, 13, 15, 30, and 33-34 have been amended necessitating new grounds of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 5, 10, and 34 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The recitation "no polarizer being provided between the second substrate and the white diffusing film" does not have basis in the original disclosure. Any claim containing a negative limitation which does not have basis in the original disclosure should be rejected under 35 USC 112, first paragraph as failing to comply with the written description requirement [MPEP 2173.05(i)]. For examination purposes, the recitation cannot be given patentable weight due to the lack of basis in the original disclosure.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 5, 10, and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Iijima USPAT 6,124,905.

As to claim 5, Iijima discloses all recitations in a passive matrix display, Figure 4 and Figure 7 (col. 9 line 43 through col. 12, line 4). Referring to Figure 7, the first substrate is 21, the signal electrodes are 24, the second substrate is 22, the opposed electrodes are 25, the liquid crystal material is 26, the seal is 23, the polarizing film on the first substrate is 12, the white diffusing film is 30, the polarizing film is 60, and the reflector is 90. Note that the reflector (90 in Figure 4) is not shown in Figure 7; however, the embodiment illustrated by Figure 7 has such a reflector (col. 11, lines 29-36).

As to claims 10 and 14, Iijima discloses all recitations in a passive matrix display, Figure 1, Figure 4, and Figure 7 (col. 9 line 43 through col. 12, line 4). Referring to Figure 7, the first substrate is 21, the signal electrodes are 24, the second substrate is 22, the opposed electrodes are 25, the liquid crystal material is 26, the seal is 23, the polarizing film on the first substrate is 12, the white diffusing film is 30, and the reflector being made up of a reflection-type polarizer is 60 with laminated structure (col. 4, lines 6-50).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6, 12, 17, 20-22, 34, 36, 38, 39, and 48-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iijima.

As to claims 6 and 36, Iijima teaches the use of a transfective plate (180 in Figure 14, and col. 1, lines 22-44) and an auxiliary light source (back light 210 in Figure 14) in his discussion of prior art. The transfective plate is positioned between the light source, 210, and the lower polarizer, 170, to provide good contrast in both back lighted and ambient lighted operating conditions. Iijima teaches the use of

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lijima is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to use a transfective plate to provide reflection of ambient light and transmission of back light.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of lijima with the transfective plate and back light of lijima.

As to claim 12, lijima teaches the use of multiple reflective polarizers to transmit polarized light in one optical axis while reflecting polarized light in the other substantially orthogonal optical axis (Figure 7).

lijima is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to use multiple reflective polarizers to transmit polarized light in one optical axis while reflecting polarized light in the other substantially orthogonal optical axis (Figure 7).

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of lijima with the reflective polarizer of lijima.

As to claims 17, 38, 48, and 49, lijima teaches the use of a coloring the light diffusion layer (col. 11, lines 17-28) along with other color methods (col. 7, lines 41-48) in conjunction with a auxiliary light source (70, Figure 7).

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Iijima is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add color layers or to add color to existing layers to achieve color display effects.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Iijima by coloring the light diffusion layer.

As to claim 20, Iijima teaches the use of a color layer with a plurality of portions (col. 7, lines 41-48).

Iijima is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add a color layer with a plurality of portions to achieve color display effects.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Iijima by adding color layer with a plurality of portions.

As to claims 21 and 22, Iijima teaches the use of Lumisty Film and Lumisty 80 with micro-pearl (col. 12, lines 5-39) which are white diffusing with a high transmittance.

As to claims 34 and 39, Iijima teaches the use of color filters (col. 7, lines 41-48) to provide color display effects, in conjunction with a auxiliary light source (70, Figure 7).

lijima is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add a color filter to achieve color display effects.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of lijima by adding color filters to the pixels.

As to claims 50 and 52, lijima teaches the use of an absorption layer in a discussion of prior art (Figure 15 and col. 1, line 58 through col. 2, line 41) to improve contrast.

lijima is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add an absorption layer to improve contrast.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of lijima by adding a light absorption layer.

As to claims 53 and 54, lijima teaches in Figure 7 (col. 11, lines 29-36), the use of a light source, 70, on a side of the reflection-type polarizing film, 60, opposite the visible side (top) to illuminate the display.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of lijima by adding a light to illuminate the display.

5. Claims 7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iijima in view of Hiroshi et al (Hiroshi) Japanese Publication 10-239683.

As to claim 7, Iijima does not explicitly disclose a diffusion film disposed between the first substrate and the polarizing film.

Hiroshi teaches the use of a white diffusion film disposed between the first substrate and the polarizing film (Drawing 1) to improve viewing angle (third from last para).

Hiroshi is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add a diffusion film disposed between the first substrate and the polarizing film to improve viewing angle.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Iijima with the diffusion film disposed between the first substrate and the polarizing film.

As to claim 11, Iijima discloses all recitations except the diffusing film in a passive matrix display, Figure 4 and Figure 7 (col. 9 line 43 through col. 12, line 4). Referring to Figure 7, the first substrate is 21, the signal electrodes are 24, the second substrate is 22, the opposed electrodes are 25, the liquid crystal material is 26, the seal is 23, the polarizing film on the first substrate is 12, and the reflector being made up of a reflection-type polarizer is 60.

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Hiroshi teaches the use of a white diffusion film disposed between the first substrate and the polarizing film (Drawing 1) to improve viewing angle (third from last para).

Hiroshi is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add a diffusion film disposed between the first substrate and the polarizing film to improve viewing angle.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Iijima with the diffusion film disposed between the first substrate and the polarizing film.

6. Claims 21, 22, 24, 26, 28, 29, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iijima in view of Hirozo, Japanese Publication 08-146207.

As to claims 21, 22, 24, 26, 28, 29, and 31, Hirozo teaches the use of a film with approximate quadratic surface texture and internal transparent beads (abstract and entire publication) to achieve good diffusion with a thin and highly transmissive (greater than 70%) layer.

Hirozo is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to use a film with approximate quadratic surface texture and internal transparent beads to achieve good diffusion with a thin and highly transmissive (greater than 70%) layer.

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Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Iijima with the holographic reflector of Chen.

7. Claims 40, 42, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iijima in view of Mitsui et al (Mitsui) USPAT 6,175,399 B1.

As to claims 40, 42, and 43, Mitsui teaches the use of a liquid crystal diffuser to achieve high contrast (abstract).

Mitsui is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to use a liquid crystal diffuser to improve contrast.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Iijima with the liquid crystal diffuser of Mitsui.

8. Claims 13, 15, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (APA) in view of Iijima.

As to claims 13, 15, and 30, APA discloses in Figure 27 a conventional LCD with non-reflective polarizers, 21A and 21B and a reflector, 25.

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APA does not explicitly disclose the claimed diffusing film and reflective polarizing film.

Iijima teaches, Figure 4 and Figure 7 (col. 9 line 43 through col. 12, line 4). Referring to Figure 7, Iijima teaches the first substrate is 21, the signal electrodes are 24, the second substrate is 22, the opposed electrodes are 25, the liquid crystal material is 26, the seal is 23, the polarizing film on the first substrate is 12, the white diffusing film is 30, the polarizing film is 60, and the reflector is 90. Note that the reflector (90 in Figure 4) is not shown in Figure 7; however, the embodiment illustrated by Figure 7 has such a reflector (col. 11, lines 29-36) to comprise a transfective LCD without positive-negative reversal between the reflective display mode and the transmissive display mode (col. 2, lines 51-57).

Iijima is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add a reflective polarizer and a diffuser to comprise a transfective LCD without positive-negative reversal between the reflective display mode and the transmissive display mode.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of APA with the reflective polarizer and diffuser of Iijima.

Allowable Subject Matter

9. Claims 32 and 33 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

As to claims 32 and 33, relevant prior art of record did not disclose a diffusion layer *having regions around the pixels of a diffusibility differing from the regions over the pixels*. The closest reference is Iijima as applied above, but Iijima does not disclose the claimed structure.

10. Claims 44, 46, and 47 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claims 44, 46, and 47, relevant prior art of record did not disclose a liquid crystal diffusion film *with electrodes such that the diffusion performance is variable with applied voltage*. The closest reference is Iijima as applied above, but Iijima does not disclose the claimed structure.

Response to Arguments

11. Applicant's arguments filed 17 June 2002 have been fully considered but they are not persuasive.

Applicant's ONLY arguments are as follows:

(1) Regarding claims 5, 10, and 34, Iijima fails to teach no polarizer being provided between the second substrate and the white diffusing film.

(2) Regarding claim 11, Iijima in view of Hiroshi fails to teach the claimed structure.

(3) Regarding claim 13, combining Iijima with APA would not result in the claimed structure.

Examiner's responses to Applicant's ONLY arguments are as follows:

(1) It is respectfully pointed out that the rejection cannot be given patentable weight due to the lack of basis in the original disclosure, per rejection under 35 USC 112, first paragraph, above.

(2) It is respectfully pointed out that Iijima discloses the basic structure and Hiroshi teaches the white diffusion film disposed between the first substrate and the polarizing film with applicable motivation to combine per rejection above.

(3) It is respectfully pointed out that the polarizer without reflection characteristics is disclosed by APA. Iijima teaches the addition of structure to comprise a transfective LCD without positive-negative reversal between the reflective display

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mode and the transmissive display mode. Iijima teaches a number of embodiments that would have rendered the claimed invention obvious to those having ordinary skill in the art of liquid crystals, per rejection above. Note that it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom (MPEP 2144.01). Further, it has been held that the test for obviousness is not whether the features of one reference may be bodily incorporated into the other to produce the claimed subject matter but simply what the combination of references makes obvious to one of ordinary skill in the art. Lastly, optimization of the order and types of polarizers, reflectors, diffusers, etc. would be a matter of routine to those having ordinary skill in the art of liquid crystals given the disclosure of APA and the teachings of Iijima.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy L Rude whose telephone number is (703) 305-0418. The examiner can normally be reached on Monday through Thursday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.

Timothy L Rude
Examiner
Art Unit 2871

TLR
April 15, 2003


T. Chowdhury
Primary Examiner